

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:	Takagi et al.	Docket No.:	AM100246-00
Serial No.:	10/019,481	Confirmation No.:	1417
Filing Date:	4/4/2002	Examiner:	LEVY, NEIL S
Customer No.:	26474	Art Unit:	1615

For: Ant controllers and method for application thereof

Honorable Commissioner
for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

Sir:

This is an appeal from the Examiner's rejection of claims 1, 10 and 13 – 47, mailed August 22, 2007.

The fee set forth in 37 C.F.R. § 41.20(b)(2) was paid by credit card in association with the Appeal Brief filed on November 15, 2006. Pursuant to 35 U.S.C. §134 and MPEP §1207.04, no additional fees should be due. Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees, to Deposit Account 14.1437. Please credit any excess fees to such account.

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REAL PARTY IN INTEREST:

To the best of the undersigned's knowledge, the real party in interest is BASF SE, formerly BASF Aktiengesellschaft, of Ludwigshafen, Germany.

RELATED APPEALS AND INTERFERENCES:

An Appeal Brief was filed in the present application on November 15, 2006. In the Office action of March 09, 2007, the Examiner withdrew the Appeal and reopened prosecution. To the best of the undersigned's knowledge, there are no related interferences or judicial proceedings.

STATUS OF CLAIMS:

- Claims 1, 10 and 13 – 47 are pending in the application.
- Claims 1, 10 and 13 – 47 are rejected.
- No claims are allowed or confirmed.
- Claims 1, 10 and 13 – 47 are subject to restriction and/or election requirement.
- No claims are withdrawn.
- No claims are objected to.
- Claims 2 – 9, 11 and 12 are canceled.

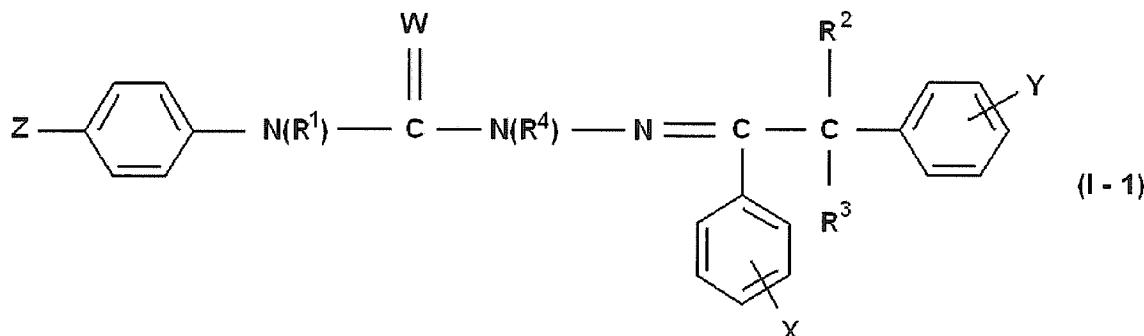
STATUS OF AMENDMENT:

No amendment was filed after the rejection.

SUMMARY OF CLAIMED SUBJECT MATTER:

The independent claims involved in the appeal are claims 1, 15 and 16. All other claims are dependent on these claims and will not be argued separately in this paper. Summary of the subject matter of the dependent claims is omitted as unnecessary.

The present invention relates methods of using a hydrazine compound of formula (I-1):



wherein

R^1 represents hydrogen or C_1 - C_6 alkyl;

R^2 and R^3 , which may be same or different, represent hydrogen, hydroxyl, C_1 - C_6 alkyl, C_1 - C_6 alkoxy, C_1 - C_6 alkylcarbonyl or phenylcarbonyl;

R^4 represents hydrogen or C_1 - C_6 alkyl;

X represents 1 to 5 same or different substituents selected from the group consisting of hydrogen, halogen, C_1 - C_6 alkyl and halo C_1 - C_6 alkyl;

Y represents 1 to 5 same or different substituents selected from the group consisting of nitro and cyano;

Z represents halogen, cyano, C_1 - C_6 alkyl, halo C_1 - C_6 alkyl, C_1 - C_6 alkoxy, halo C_1 - C_6 alkoxy, halo C_1 - C_6 alkylthio, halo C_1 - C_6 alkylsulfinyl or halo C_1 - C_6 alkylsulfonyl; and

W represents oxygen or sulfur.¹

Independent claim 1 relates to a method for controlling a pest selected from the Isoptera, Hymenoptera, Orthoptera and Psocoptera orders² which comprises applying to said pest or to a wooden part³ or to soil in the habitat of said pest⁴ an effective amount⁵ of the hydrazine compound of formula (I-1).

¹ Specification: page 2 at indicated line 25 through page 4 at indicated line 20.

² Specification: page 2 at indicated lines 5 – 9.

³ Specification: page 25 at indicated line 25 through page 26 at indicated line 8.

⁴ Specification: page 25 at indicated lines 25 – 30; and page 26 at indicated lines 8 – 10.

⁵ Specification: page 26 at indicated lines 18 – 24.

Independent claim 15 relates to a method for protecting houses⁶ or an article selected from construction materials, furniture, leather, fibers, vinyl articles, electronic wires and cables⁷ against a pest selected from the Rhinotermitidae, Termitidae, Kalotermitidae and Termopsidae families⁸, which comprises applying an effective amount⁹ of a hydrazine compound of formula (I-1) to said pest, a habitat or a nest of said pest, to a place at which occurrence of said pest is expected¹⁰ or to the article¹¹.

Independent claim 16 relates to a method for controlling a pest from the Formicidae family in crops¹², which comprises applying an effective amount¹³ of a hydrazine compound of formula (I-1) to said pest, to said crops, to soil surrounding said crops or to a nest of said pest.¹⁴

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL:

- I. Whether the examiner erred rejecting claims 1, 10, and 13 – 47 stand rejected under 35 U.S.C. §102 (a) and (e) over *Treacy et al.* (US 6,342,518).
- II. Whether the examiner erred rejecting claims 1, 10, 13 – 47 stand rejected under 35 U.S.C §103(a) over *Stefferud*¹⁵ in view of *Takagi et al.* (US 5,543,573).
- III. Whether the examiner erred rejecting claims 1, 10, 13 – 47 stand rejected under 35 U.S.C §103(a) over *Treacy et al.* in view of *Takagi et al.* and *Stefferud*.

⁶ Specification: page 25 at indicated lines 29 – 30.

⁷ Specification: page 25 at indicated line 30 through page 26 at indicated line 8.

⁸ Specification: page 23 at indicated lines 9 – 19.

⁹ Specification: page 26 at indicated lines 18 – 24.

¹⁰ Specification: page 26 at indicated lines 11 – 17.

¹¹ Specification: page 25 at indicated line 30 through page 26 at indicated line 8.

¹² Specification: page 23 at indicated lines 20 – 29.

¹³ Specification: page 26 at indicated lines 18 – 24.

¹⁴ Specification: page 26 at indicated lines 8 – 11.

¹⁵ Stefferud, ed., INSECTS – the year book of agriculture, p 469, (1952).

ARGUMENT:**I. Claims 1, 10, and 13 – 47 stand rejected under 35 U.S.C. §102 (a) and (e) over *Treacy et al.* (US 6,342,518).**

According to 35 U.S.C §102(a) “a person shall be entitled to a patent unless the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the Appellants for a patent.” The *Treacy et al.* patent did not issue until January 29, 2002, thus it was not patented or described in a printed publication in this or a foreign country before the invention thereof by the present Appellants, who claim foreign priority to JP 11/190671 filed July 05, 1999. “The statutory language ‘known or used by others in this country’ (35 U.S.C. § 102(a)), means knowledge or use which is accessible to the public.”¹⁶ No allegation has been made that the invention disclosed in the *Treacy et al.* patent was known or used by others in this country before the invention of the present invention. Appellants respectfully submit, therefore, that the *Treacy et al.* patent is not prior art under 35 U.S.C §102(a).

Appellants respectfully submit that the Examiner’s argument that “the Treacy disclosure is no better/no worse than Appellant’s”¹⁷ is inappropriate. The Examiner has not applied the appropriate legal standard. In general, anticipation under 35 U.S.C. §102 can be found only if a reference shows *exactly* what is claimed.¹⁸ The fact that claimed subject matter may be encompassed by a generic disclosure does not by itself establish obviousness of the claimed subject matter.¹⁹ The test for anticipation is one of identity which means that the identical invention must be shown in the reference in as complete detail as is contained in the claim.²⁰ In fact, the Federal Circuit has stated that it is error to treat claims as a catalog of separate parts, in disregard of the part-to-part relationships set forth in the claims that give those claims their meaning.²¹

¹⁶ *Carella v. Starlight Archery*, 804 F.2d 135, 231 USPQ 644 (Fed. Cir. 1986).

¹⁷ Page 2 of the Final Office Action of July 3, 2006, at lines 7 – 8.

¹⁸ See *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985).

¹⁹ See *In re Baird*, 16 F.3d 380, 29 USPQ2d 1550 (Fed. Cir. 1994).

²⁰ See *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913 (Fed. Cir. 1989).

²¹ See *Lindemann Maschinenfabrik v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481 (Fed. Cir. 1984).

The *Treacy et al.* reference does not show the identical invention in as complete detail as is contained in Appellants' claims. More specifically, the reference does not show:

- (a) a method for controlling a pest selected from the *Isoptera*, *Hymenoptera*, *Orthoptera* and *Psocoptera* orders which comprises applying to said pest or to a wooden part or to soil in the habitat of said pest an effective amount of a certain hydrazine compound as is represented by Appellants' formula (I-1) which specifically requires for Y being 1 to 5 of the same or different substituents selected from the group consisting of nitro and cyano;
- (b) a method for protecting houses or an article selected from construction materials, furniture, leather, fibers, vinyl articles, electronic wires and cables against a pest selected from the *Rhinotermitidae*, *Termitidae*, *Kalotermitidae* and *Termopsidae* families, which comprises applying an effective amount of a hydrazine compound of formula (I-1) which specifically requires for Y being 1 to 5 of the same or different substituents selected from the group consisting of nitro and cyano, to said pest, a habitat or a nest of said pest, to a place at which occurrence of said pest is expected or to the article; or
- (c) a method for controlling a pest from the *Formicidae* family in crops, which comprises applying an effective amount of a certain hydrazine compound as is represented by Appellants' formula (I-1) which specifically requires for Y being 1 to 5 of the same or different substituents selected from the group consisting of nitro and cyano, to said pest, to said crops, to soil surrounding said crops or to a nest of said pest.

The *Treacy et al.* reference relates to a binary composition,²² which comprises synergistically effective amounts of both:

- a neuronal sodium channel antagonist, and
- an arylpyrrole.

The reference indicates that this binary composition is effective against a wide variety of *lepidopteran* and *coleopteran* insects such as cotton bollworm, tobacco budworm, potato

²² Col. 1, indicated lines 61 to 67, of US 6,342,518.

beetle and corn rootworm and the like.²³ The reference also speculates that their binary composition “may be useful”²⁴ to control cockroaches, ants, termites or the like.

Appellants respectfully submit that the reference does not disclose that the binary composition “was used to control [c]ockroach[es], ants, termites or the like”²⁵ as suggested by the Examiner. Again, the reference merely speculates that the binary composition may be useful for those purposes.

Moreover, the claims of Appellants’ application require the utilization of an effective amount of the hydrazine compound of formula (I-1) for controlling or protecting against certain pests. The hydrazine compound of formula (I-1) is encompassed by *Treacy et al.*’s generic disclosure of a huge spectrum of neuronal sodium channel antagonists, but the reference does not disclose the utilization of an effective amount of a hydrazine compound of formula (I-1) alone to control the specific pests targeted by the present invention. Instead, the reference provides for effective amounts of the binary composition, one component of which is a neuronal sodium channel antagonist. Again, Appellants’ claims call for effective amounts of the specific compound of formula (I-1), itself. Thus, the *Treacy et al.* reference does not show the identical invention in as complete detail as is contained in Appellants’ claims.

On page 4 of the non-final Office action mailed March 09, 2007, the Examiner made the following statement:

TREACY (above) show the instant compound as I-A at only 0.01PPM, is effective against lepidoptera and coleoptera including cotton boll worm and tobacco budworm (Table I, II) and also against flies, mosquitoes, cockroach, ants, termites and the like (column 7, lines 25-35) when applied to habitats or plants (column 7, lines 9, 10, 32-35).

With regard to the first half of this statement, Appellants respectfully note that in Example 1 the *Treacy et al.* reference provides the results of an evaluation of the synergistic insecticidal effect of a combination of a neuronal sodium channel antagonist plus an arylpyrrol insecticide on the *Heliothis zea* (cotton bollworm), *Heliothis virescens* (tobacco budworm) and pyrethroid-resistant *Heliothis virescens*.²⁶ These results include

²³ Col. 7, indicated lines 26 to 31, of US 6,342,518.

²⁴ Col. 7, indicated line 32 of US 6,342,518.

²⁵ Page 4 of the non-final Office Action of June 11, 2004 at lines 13 – 14 (emphasis added).

²⁶ See Column 7, lines 41 – 52 of US 6,342,518.

a comparison to a sodium channel antagonist used alone. The comparative data provided does not disclose the utilization of an effective amount of a hydrazine compound of formula (I-1) to control the specific pests targeted by the present invention. Instead, the comparative data merely shows the effect of a sodium channel antagonist used alone on cotton bollworm and tobacco budworm.

The second half of the Examiner's statement is in error. The Examiner states that column 7, lines 25 – 35 of the reference shows that the instant compound is effective "against flies, mosquitoes, cockroach, ants, termites and the like." This statement is erroneous, because the cited portion of the reference only refers to the binary composition, which is the subject of the *Treacy et al.* reference, and not to effective amounts of the specific compound of formula (I-1), itself, as required by Appellants' claims.

It is respectfully submitted, therefore, that the rejections under 35 U.S.C. §102 based on the *Treacy et al.* reference should be reversed.

II. Claims 1, 10, 13 – 47 stand rejected under 35 U.S.C §103(a) over *Stefferud*²⁷ in view of *Takagi et al.* (US 5,543,573)

"Reading a list and selecting a known compound to meet known requirements is no more ingenious than selecting the last piece to put in the last opening in a jig-saw puzzle."²⁸ Appellants respectfully submit, however, that the present invention is not merely the selection of a known material based on its suitability for its intended use. As explained in the specification, "[t]he present inventors have conducted extensive studies with the aim of creating a novel ant controller having a marked controlling effect upon ants doing harm to the wooden materials constituting houses, furniture, etc. or crops and human being[s]. As a result, it has been found that the hydrazine derivatives described in the ... prior art have a marked insecticidal effect upon termites and ants."²⁹

According to the Examiner, however, "the prior art is well aware of the use of the instant [h]ydrazine insecticide and its effectiveness to control various species, including

²⁷ Stefferud, ed., INSECTS – the year book of agriculture, p 469, (1952).

²⁸ *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327 at 335, 65 USPQ 297 at 301 (1945).

²⁹ Page 2, lines 10 – 18 of the Specification.

ants [and] termites.”³⁰ The basis for the Examiner’s assertion is as follows:

STEFFERUD ’52 shows household insects include termites, ants (page 69) and beetles, such as powder post beetles, and lice, mites, flies which damage buildings and wood furniture, clothing, rugs, upholstery. Thus, application to control beetles, mites, flies would also control ants, termites, and wasps, as they are all household insect pests.. TAKAGI (above) shows the instant compounds to be particularly effective and useful at low dosages, and are applied to control those insects (powder post beetles, column 62, line 44) STEFFERUD identifies as of wood and household concerns.

This rationale can and should be rejected out of hand. The Examiner’s argument is analogous to the following argument: Chocolate kills dogs. People and dogs are both household mammals. Therefore, chocolate kills people.

Appellants respectfully submit that a person of ordinary skill in the art had no basis on which to assume that the hydrazine compound disclosed by *Takagi et al.* would have an insecticidal effect on all the insects labeled by *Stefferud* as “household insects” merely because *Takagi et al.* disclose that the hydrazine compound has an insecticidal effect on one type of insect falling within that definition. This argument is devoid of any basis in fact or technical reasoning.

In the case of *KSR International Co. v. Teleflex Inc.*,³¹ the U.S. Supreme Court explained that “[i]f a person of ordinary skill can implement a predictable variation, §103 likely bars its patentability.”³² Thus, it is clear, as expressed in the MPEP, that “the mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art.”³³ A person of ordinary skill in the art had no reasonable basis to predict what result a hydrazine compound would have on the insects labeled by *Stefferud* as “household insects.” Moreover, it would not have been obvious for a person of ordinary skill in the art to determine, as the present inventors did through extensive studies, whether a hydrazine compound of formula (I-1) could be used to control the specific pests targeted by the present invention, and what would constitute an effective amount of a hydrazine compound of formula (I-1) to control the specific pests targeted by the

³⁰ Page 6, lines 1 – 3 of the non-final Office action mailed March 09, 2007

³¹ *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385 (2007).

³² *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1396 (2007) (emphasis added).

³³ MPEP § 2143.01, subsection III.

present invention.

More specifically, Appellants respectfully submit that at the time the present invention was made the *Stefferud* reference taken in view of the *Takagi et al.* reference did not teach or suggest:

- all the limitations of claim 1, because the cited references do not teach a method for controlling a pest selected from the *Isoptera*, *Hymenoptera*, *Orthoptera* and *Psocoptera* orders which comprises applying to said pest or to a wooden part or to soil in the habitat of said pest an effective amount of a hydrazine compound of formula (I-1).
- all the limitations of claim 15, because the cited references do not teach a method for protecting houses or an article selected from construction materials, furniture, leather, fibers, vinyl articles, electronic wires and cables against a pest selected from the *Rhinotermitidae*, *Termitidae*, *Kalotermitidae* and *Termopsidae* families, which comprises applying an effective amount of a hydrazine compound of formula (I-1) ... to said pest, a habitat or a nest of said pest, to a place at which occurrence of said pest is expected or to the article.
- all the limitations of claim 16, because the cited references do not teach a method for controlling a pest from the *Formicidae* family in crops, which comprises applying an effective amount of a hydrazine compound of formula (I-1) ... to said pest, to said crops, to soil surrounding said crops or to a nest of said pest.

In the context of a withdrawn rejection under 35 U.S.C §102(b) over *Takagi et al.* the Examiner acknowledged that “ant[s] and termite[s] are not specifically addressed”³⁴ in the *Takagi et al.* reference. This acknowledgment is true, but does not go far enough. In fact, the reference does not address any of the insect orders or families that are recited in the claims. The *Takagi et al.* reference merely discloses the use of a broad range of hydrazinecarboxamides against various insect pests (See column 62, lines 6 to 67). The reference states that “[t]he insecticides are markedly effective particularly against insect pests belonging to LEPIDOPTERA, and COLEOPTERA and the like.”³⁵ As explained in

³⁴ Page 3, line 7 of the non-final Office action mailed March 09, 2007.

³⁵ Column 62, line 67 to column 63, line 2 of US 5,543,573.

the Declaration of Dr. Hassan Oloumi-Sadeghi, filed on April 11, 2006, the *Takagi et al.* reference was unsuited to suggest the methods of the present application, because: the reference merely discloses hydrazinecarboxamide derivatives which are generic to the hydrazine compound of the present claims (formula I-1), and the reference's teaching with regard to the insecticidal activity of the generic compounds was too general to suggest that any particular group of compounds within the genus exhibit noteworthy effects on specific pests.

Making reference to the passage in column 63, lines 7 to 22, wherein *Takagi et al.* mention the possibility of applying the hydrazinecarboxamides I to certain substrates such as, for example, trees, soil, the inside of a house or ditches around a house, the examiner has also stated that "the method steps ... the application sites ... and rates are those of the instant claims, and must result in the same control...."³⁶ To the contrary, a skilled artisan had no reasonable basis to predict whether the "same control" would occur. By utilizing the method disclosed by *Takagi et al.*, one might by happenstance apply an effective amount of a hydrazine compound as claimed to a pest as claimed. Of course, "[t]he fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic."³⁷ Indeed, it is well-settled that "[t]o establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'"³⁸

Appellants respectfully submit that any conclusion that the *Takagi et al.* method would inherently be effective against the "household insects" listed by *Stefferud* is in error. Indeed, it should be readily apparent that a specific insecticide is not necessarily effective against all insects that can possibly or would probably occur in a given location. For at least these reasons, the present rejection is in error and should be reversed.

³⁶ Page 3, lines 7 – 12 of the non-final Office action mailed March 09, 2007.

³⁷ *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993).

³⁸ *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).

III. Claims 1, 10, 13 – 47 stand rejected under 35 U.S.C §103(a) over *Treacy et al.* in view of *Takagi et al.* and *Stefferud*.

As discussed above, the *Treacy et al.* reference addresses a binary composition³⁹ which comprises synergistically effective amounts of a neuronal sodium channel antagonist, and an arylpyrrole. *Treacy et al.* provide that this binary composition is effective against a wide variety of lepidopteran and coleopteran insects such as cotton bollworm, tobacco budworm, potato beetle and corn rootworm and the like.⁴⁰ *Treacy et al.* do not demonstrate that their binary composition would be useful against the specific pests targeted by the present invention. Instead, *Treacy et al.* merely speculate that their binary composition “may be useful”⁴¹ to control cockroaches, ants, termites or the like. First, a skilled artisan would not have assumed that a single component of *Treacy et al.*’s binary composition, used alone, would have the same or even similar effectivity as *Treacy et al.*’s binary composition. Second, a skilled artisan would not have assumed that *Treacy et al.*’s speculations regarding the effectivity of their binary composition would apply to a single component of the binary composition when used alone.

Again, *Treacy et al.* provide a comparison between their binary composition and a sodium channel antagonist used alone. The comparative data provided does not disclose the utilization of an effective amount of a hydrazine compound of formula (I-1) to control the specific pests targeted by the present invention. Instead, the comparative data merely shows the effect of a sodium channel antagonist used alone on cotton bollworm and tobacco budworm. Thus, the Examiner’s statement that *Treacy et al.* “show [that] the instant compound … is effective against … flies, mosquitoes, cockroach[es], ants, termites and the like [sic]”⁴² is in clear error.

Again, the Examiner has acknowledged that “ant[s] and termite[s] are not specifically addressed”⁴³ in the *Takagi et al.* reference.

Appellants respectfully submit that a person of ordinary skill in the art would not have assumed that compounds disclosed by *Takagi et al.* and/or *Treacy et al.* would have

³⁹ Cf. col. 1, indicated lines 61 to 67, of US 6,342,518.

⁴⁰ Cf. col. 7, indicated lines 26 to 31, of US 6,342,518.

⁴¹ Cf. col. 7, indicated line 32, of US 6,342,518.

⁴² Page 4, lines 13 – 16 of the Office action mailed March 09, 2007.

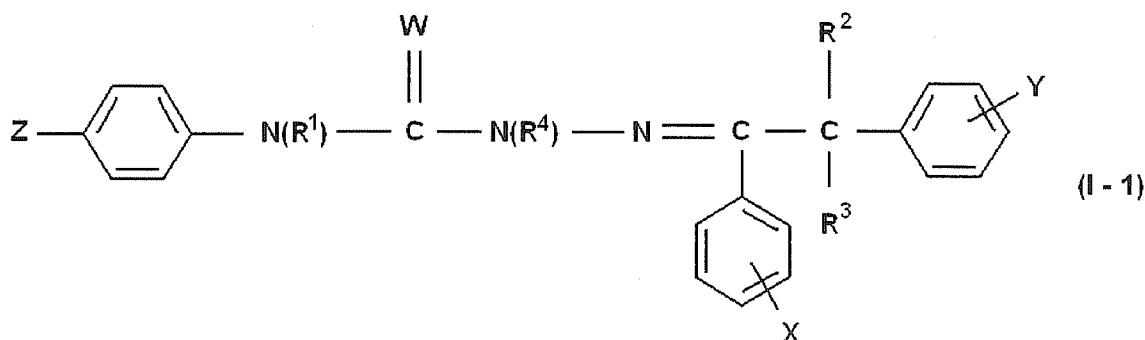
⁴³ Page 3, line 7 of the non-final Office action mailed March 09, 2007.

an insecticidal effect on all the insects labeled by *Stefferud* as "household insects" merely because *Takagi et al.* and/or *Treacy et al.* disclose a compound having an insecticidal effect on one type of insect falling within that definition. In other words, a person of ordinary skill in the art would understand that an insecticide that is useful against one pest will not necessarily be effective against all other pests infesting an area near that pest. Such a notion is devoid of all basis in fact or technical reasoning.

For at least these reasons, the present rejection is in error and should be overturned.

CLAIMS APPENDIX:

1. A method for controlling a pest selected from the Isoptera, Hymenoptera, Orthoptera and Psocoptera orders which comprises applying to said pest or to a wooden part or to soil in the habitat of said pest an effective amount of a hydrazine compound of formula (I-1):



wherein

R¹ represents hydrogen or C₁-C₆ alkyl;

R² and R³, which may be same or different, represent hydrogen, hydroxyl, C₁-C₆ alkyl, C₁-C₆ alkoxy, C₁-C₆ alkylcarbonyl or phenylcarbonyl;

R⁴ represents hydrogen or C₁-C₆ alkyl;

X represents 1 to 5 same or different substituents selected from the group consisting of hydrogen, halogen, C₁-C₆ alkyl and halo C₁-C₆ alkyl;

Y represents 1 to 5 same or different substituents selected from the group consisting of nitro and cyano;

Z represents halogen, cyano, C₁-C₆ alkyl, halo C₁-C₆ alkyl, C₁-C₆ alkoxy, halo C₁-C₆ alkoxy, halo C₁-C₆ alkylthio, halo C₁-C₆ alkylsulfinyl or halo C₁-C₆ alkylsulfonyl; and

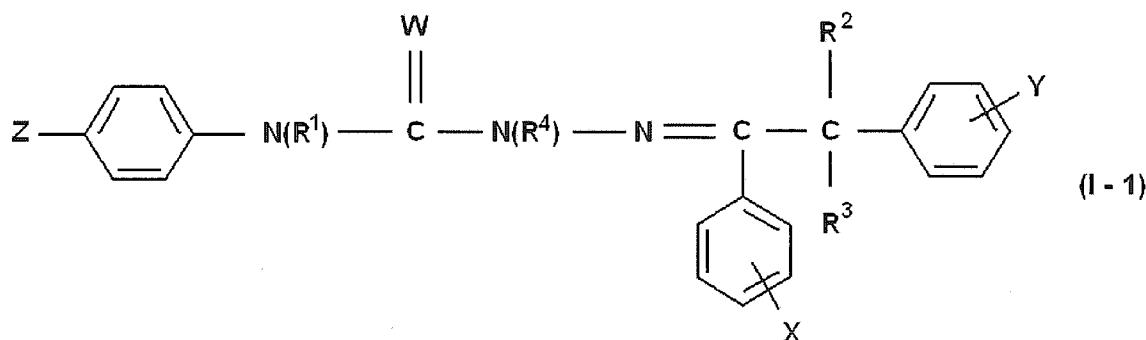
W represents oxygen or sulfur.

2. - 9. (canceled)

10. The method of claim 1, wherein the hydrazine compound is applied to the wooden part in an amount of 0.1 to 50 g/m², to a pest selected from the Rhinotermitidae, Termitidae, Kalotermitidae and Termopsidae families.

11. - 12. (canceled)

13. The method of claim 1, wherein R¹ to R⁴ each denote hydrogen, X is trifluoromethyl, Y is cyano, Z is trifluoromethoxy, and W is oxygen.
14. The method of claim 1, wherein the pest is an ant or a termite.
15. A method for protecting houses or an article selected from construction materials, furniture, leather, fibers, vinyl articles, electronic wires and cables against a pest selected from the Rhinotermitidae, Termitidae, Kalotermitidae and Termopsidae families, which comprises applying an effective amount of a hydrazine compound of formula (I-1):



wherein

R¹ represents hydrogen or C₁-C₆ alkyl;

R² and R³, which may be same or different, represent hydrogen, hydroxyl, C₁-C₆ alkyl, C₁-C₆ alkoxy, C₁-C₆ alkylcarbonyl or phenylcarbonyl;

R⁴ represents hydrogen or C₁-C₆ alkyl;

X represents 1 to 5 same or different substituents selected from the group consisting of hydrogen, halogen, C₁-C₆ alkyl and halo C₁-C₆ alkyl;

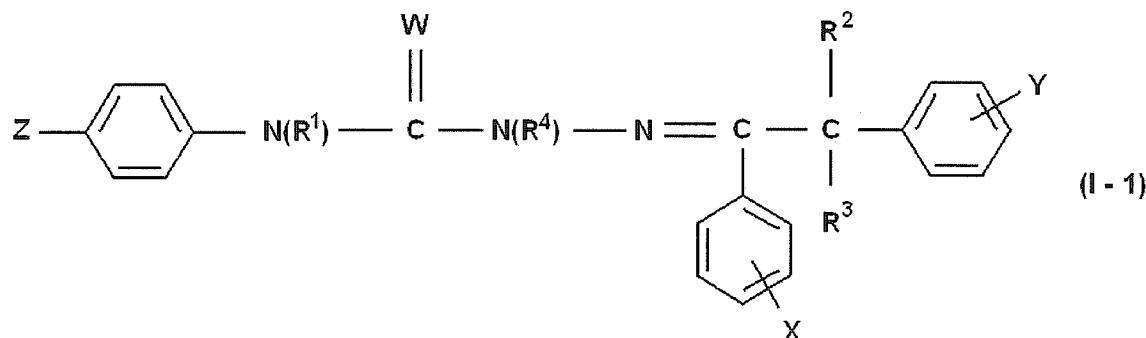
Y represents 1 to 5 same or different substituents selected from the group consisting of nitro and cyano;

Z represents halogen, cyano, C₁-C₆ alkyl, halo C₁-C₆ alkyl, C₁-C₆ alkoxy, halo C₁-C₆ alkoxy, halo C₁-C₆ alkylthio, halo C₁-C₆ alkylsulfinyl or halo C₁-C₆ alkylsulfonyl; and

W represents oxygen or sulfur,

to said pest, a habitat or a nest of said pest, to a place at which occurrence of said pest is expected or to the article.

16. A method for controlling a pest from the Formicidae family in crops, which comprises applying an effective amount of a hydrazine compound of formula (I-1):



wherein

R^4 represents hydrogen or $C_1\text{-}C_6$ alkyl, and

X represents 1 to 5 same or different substituents selected from the group consisting of hydrogen, halogen, $C_1\text{-}C_6$ alkyl and halo $C_1\text{-}C_6$ alkyl,

R^1 represents hydrogen or $C_1\text{-}C_6$ alkyl;

R^2 and R^3 , which may be same or different, represent hydrogen, hydroxyl, $C_1\text{-}C_6$ alkyl, $C_1\text{-}C_6$ alkoxy, $C_1\text{-}C_6$ alkylcarbonyl or phenylcarbonyl;

Y represents 1 to 5 same or different substituents selected from the group consisting of nitro and cyano;

Z represents halogen, cyano, $C_1\text{-}C_6$ alkyl, halo $C_1\text{-}C_6$ alkyl, $C_1\text{-}C_6$ alkoxy, halo $C_1\text{-}C_6$ alkoxy, halo $C_1\text{-}C_6$ alkylthio, halo $C_1\text{-}C_6$ alkylsulfinyl or halo $C_1\text{-}C_6$ alkylsulfonyl; and

W represents oxygen or sulfur.

to said pest, to said crops, to soil surrounding said crops or to a nest of said pest.

17. The method of claim 16, wherein the hydrazine compound is applied in an amount of from 1 to 500 g/m^2 .
18. The method of claim 1, wherein R^2 and R^3 are, independent of one another, hydrogen, hydroxyl or $C_1\text{-}C_6$ -alkyl.
19. The method of claim 18, wherein R^2 and R^3 are hydrogen.

20. The method of claim 1, wherein X is hydrogen, halogen or halo C₁-C₆ alkyl.
21. The method of claim 20, wherein X is halo C₁-C₆ alkyl.
22. The method of claim 1, wherein Y is cyano.
23. The method of claim 1, wherein Z is halogen, halo C₁-C₆ alkyl, halo C₁-C₆ alkoxy, halo C₁-C₆ alkylthio, halo C₁-C₆ alkylsulfinyl or halo C₁-C₆ alkylsulfonyl.
24. The method of claim 23, wherein Z is halo C₁-C₆ alkoxy.
25. The method of claim 1, wherein W is oxygen.
26. The method of claim 1, wherein X is halo C₁-C₆ alkyl, Y is cyano, and Z is halo C₁-C₆ alkoxy.
27. The method of claim 1, wherein R² and R³ are hydrogen, X is halo C₁-C₆ alkyl, Y is cyano, Z is halo C₁-C₆ alkoxy, and W is oxygen.
28. The method of claim 15, wherein R² and R³ are, independent of one another, hydrogen, hydroxyl or C₁-C₆-alkyl.
29. The method of claim 28, wherein R² and R³ are hydrogen.
30. The method of claim 15, wherein X is hydrogen, halogen or halo C₁-C₆ alkyl.
31. The method of claim 30, wherein X is halo C₁-C₆ alkyl.
32. The method of claim 15, wherein Y is cyano.
33. The method of claim 15, wherein Z is halogen, halo C₁-C₆ alkyl, halo C₁-C₆ alkoxy, halo C₁-C₆ alkylthio, halo C₁-C₆ alkylsulfinyl or halo C₁-C₆ alkylsulfonyl.
34. The method of claim 33, wherein Z is halo C₁-C₆ alkoxy.
35. The method of claim 15, wherein W is oxygen.
36. The method of claim 15, wherein X is halo C₁-C₆ alkyl, Y is cyano, and Z is halo C₁-C₆ alkoxy.
37. The method of claim 15, wherein R² and R³ are hydrogen, X is halo C₁-C₆ alkyl, Y is cyano, Z is halo C₁-C₆ alkoxy, and W is oxygen.
38. The method of claim 16, wherein R² and R³ are, independent of one another, hydrogen, hydroxyl or C₁-C₆-alkyl.
39. The method of claim 38, wherein R² and R³ are hydrogen.
40. The method of claim 16, wherein X is hydrogen, halogen or halo C₁-C₆ alkyl.
41. The method of claim 40, wherein X is halo C₁-C₆ alkyl.
42. The method of claim 16, wherein Y is cyano.

43. The method of claim 16, wherein Z is halogen, halo C₁-C₆ alkyl, halo C₁-C₆ alkoxy, halo C₁-C₆ alkylthio, halo C₁-C₆ alkylsulfinyl or halo C₁-C₆ alkylsulfonyl.
44. The method of claim 43, wherein Z is halo C₁-C₆ alkoxy.
45. The method of claim 16, wherein W is oxygen.
46. The method of claim 16, wherein X is halo C₁-C₆ alkyl, Y is cyano, and Z is halo C₁-C₆ alkoxy.
47. The method of claim 16, wherein R² and R³ are hydrogen, X is halo C₁-C₆ alkyl, Y is cyano, Z is halo C₁-C₆ alkoxy, and W is oxygen.

EVIDENCE APPENDIX:

None.

RELATED PROCEEDINGS APPENDIX:

None.